

Region 3 GPRA Baseline RCRA Corrective Action Facility **Cook Composites and Polymers Co.**

Hwy #29 Tight Squeeze Industrial Park
Chatham, VA 24531
Congressional District No. 5
EPA ID No. VAD055046049
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Current RCRA CA Activities

RCRA Corrective Action (CA) activities at the Cook Composites and Polymers (CCP) facility are being conducted under the direction of the Virginia Department of Environmental Quality (DEQ). The CA investigations and any necessary clean up activities are being implemented in accordance with the conditions and requirements of CCP's Hazardous Waste Management Permit (Permit) for CA under the CA modules and attachments. The facility's current Permit was reissued, effective September 27, 2006, under the Virginia Hazardous Waste Management Regulations (VHWMR), which incorporates the requirements of the Resource Conservation and Recovery Act (RCRA) Regulations by reference.

Prior to the above Permit reissuance, the facility's former Permit also authorized the storage and treatment of ignitable and listed hazardous waste (D001 and F003 waste codes) by storage and treatment in tanks and treatment by incineration in the facility's on-site incinerator.

The practice of incinerating solvent hazardous wastes at the CCP facility's on-site incinerator ceased in 2000.

In 2003 and 2004, CCP modified their manufacturing processes to replace the xylene azeotropic solvent with a nitrogen sparge system. The practice of incinerating esterification water at the CCP facility's on-site incinerator ceased on March 16, 2004.

In the spring of 2004, CCP notified the DEQ of their intent to close the permitted tank storage system and the incinerator hazardous waste management units (HWMUs).

CCP completed closure activities of the permitted tank storage system and incinerator hazardous waste management units (HWMUs) under their Permit and submitted to the DEQ a *RCRA Closure Plan Implementation Report* (Closure Report), dated May 10, 2005.

On September 22, 2006, the DEQ sent CCP correspondence to provide the Director's approval of the certification of closure and the approval of the *RCRA Closure Plan Implementation Report*, dated

May 10, 2005, and the supplemental information submitted by URS Corporation on June 1, 2006, July 13, 2006, and August 30, 2006, to clarify information within the above Closure Report and to enable the staff to complete the human health risk assessment evaluation for closure of the HWMUs.

During closure activities, soils adjacent to the Incinerator/Tank Storage System Building were investigated and contamination of the soils and subsoils was discovered due to some past releases from the tank storage system vents. Contaminated soils and sub-soils resulting from releases from the permitted HWMUs were excavated so to meet the “clean-closure” risk-based performance standards. The contaminated soils were disposed off-site at permitted facilities in accordance with the requirements of the VHWMR.

The contaminated subsoils and groundwater which remain at the CCP site from releases from other solid waste management units (SWMUs) and areas of concern (AOCs) have been investigated under the RCRA Facility Investigation (RFI) and such contaminated subsoils and groundwater will be remediated under the requirements of the facility’s CA Permit. Remediation of contaminated subsoils and groundwater will be implemented as necessary to protect human health and the environment in accordance with the requirements of the facility’s Permit, the VHWMR, the RCRA, and applicable State Laws and Regulations.

Past 24 Months

A *Final Phase II RFI Report*, dated March 2006, was submitted to the DEQ along with URS Corporation correspondence, dated March 17, 2006, with responses to the DEQ’s correspondence, dated September 15, 2005, and the attached memorandums with the remaining technical review comments. (The *Final Phase II RFI Report* was received on March 20, 2006.)

The *Final Phase II RFI Report* has undergone a detailed administrative and technical review by the DEQ staff. CCP and URS were sent DEQ correspondence, dated June 8, 2006, with the technical review comments regarding the risk assessment and statistical review of the above submitted Report and regarding consistency issues with the *Work Plan, Revision 2 – Phase II RFI Volume 1 of 2*, dated May 2003. CCP was requested to provide appropriate written responses to the DEQ regarding the above itemized technical review comments by July 31, 2006.

URS submitted correspondence, dated July 28, 2006, with itemized responses to the DEQ’s risk assessment and statistical review comments provided by DEQ correspondence, dated June 8, 2006.

The DEQ risk assessment staff has developed a response memorandum, dated September 6, 2006, in response to the URS response, dated July 28, 2006. In addition, the DEQ’s groundwater staff completed the review of the *Final Phase II RFI Report* and provided review comments by memorandum, dated August 29, 2006. The Project Manager’s review comments of the *Final Phase II RFI Report* were documented in a review comments memorandum, dated April 5, 2007.

On April 5, 2007, DEQ correspondence was sent to CCP to provide the DEQ's enclosed technical review comments regarding the *Final Phase II RFI Report*, dated March 2006. The DEQ has found that the *Final Phase II RFI Report* submittal has, for the most part, adequately addressed the DEQ's correspondence, dated September 5, 2005, and the technical review comments from the DEQ staff regarding the *Phase II RFI Report*, dated December 2003.

URS correspondence, dated May 25, 2007, provided the response to the DEQ's technical review response comments regarding the *Final Phase II RFI Report*, dated March 2006. The URS response letter includes a revised *Final Phase II RFI Report*, Appendix G, Screening Level Ecological Risk Assessment (SLERA), and other attachments to address the staff's comments. URS has indicated that republication of the full *Final Phase II RFI Report* will be deferred until all comments by the DEQ have been resolved.

On September 14, 2007, the DEQ provided response comments regarding URS correspondence, dated May 25, 2007. This correspondence provided the DEQ's remaining technical review comments regarding the *Final Phase II RFI Report*, dated March 2006. The above URS response comments, reviewed by the DEQ's risk assessment staff, groundwater staff, and the project manager have, for the most part, been found satisfactory and enables URS to republish the full *RFI Report*.

On November 29, 2007, URS submitted a revised *Final Phase II RFI Report*, incorporating all applicable DEQ comments generated during the review process. The DEQ staff is reviewing this submittal prior to approval.

In addition to the above, on August 3, 2006, a meeting was held at the DEQ with representatives of CCP and URS. CCP and URS representatives presented an interim measure (IM) proposal and submitted an *IM Proposal Workplan*, dated August 2006. The purpose of the *IM Proposal Workplan* is to remediate the subsoils and groundwater area at the CCP site in Sample Area 5, the area the *Final Phase II RFI Report* has determined to require CA remediation to meet risk-based clean-up criteria and standards.

CCP has proposed the remediation in Sample Area 5 using In-Situ Chemical Oxidation (ISCO) technology. The IM is proposed to be implemented first as a Pilot Study, and then is proposed to be expanded to remediate the entire Sample Area 5 subsoils and groundwater. CCP and URS were advised that the DEQ staff needed to complete the review of the *Final Phase II RFI Report* prior to completing the review of the *IM Proposal Workplan* and providing review comments and/or a recommendation of approval of the *IM Proposal Workplan*.

Effective January 5, 2007, the DEQ project manager, risk assessment staff, and groundwater staff, have completed the review of the *IM Proposal Workplan*. A risk assessment technical review comments memorandum, dated November 2, 2006, and a groundwater technical review comments memorandum, dated December 28, 2006, has been developed for the *IM Proposal Workplan*.

It should be noted that in accordance with the facility's Permit, IMs may be implemented at any time during the term of the Permit to reduce or eliminate potential risk to human health or the environment, or to prevent or reduce the spread of contamination. Thus, an IM may be implemented at the end of the RFI. It should also be noted that the implementation of an IM to address the contamination at the site would not eliminate the Permit requirement to address the contamination under the Corrective Measures Study (CMS) requirements as specified in the facility's Permit.

On December 19, 2007, the DEQ conditionally approved the Pilot Test Work Plan component of the *IM Proposal Workplan*. Instead of an interim measure, the DEQ considered that a pilot test will move the project forward as the facility awaits approval of its *Final Phase II RFI Report*.

In accordance with the facility's Permit, upon final approval of the *Final Phase II RFI Report*, CCP will be required to submit to the DEQ for approval a *Corrective Measures Study (CMS) Work Plan* to address areas requiring site remediation. The CMS is to screen and evaluate a number of potential CA remedies, including any specified by the DEQ. Each potential CA remedy is to be evaluated in the CMS based upon the following: site conditions established under the RFI, the need to protect human health and the environment, and other criteria specified within the CCP facility's Permit. The CMS will also provide information associated with any results and findings under the *IM Proposal Workplan*, if implemented at the CCP site.

The evaluations under the CMS will be documented in a *CMS Report* submitted to the DEQ for approval and the EPA Region 3. The Permit requires that a public notice and public meeting will be held for the purpose of receiving comments regarding the Corrective Measures Remedy Selection.

Historical Background and Summary of CA Activities

On July 8, 1996, the DEQ issued a Hazardous Waste Management Permit for storage and treatment of hazardous waste to CCP located in Chatham, Virginia. The above Permit was issued under the authority of the Virginia Hazardous Waste Management Regulations (VHWMR) which incorporates the requirements of the Resource Conservation and Recovery Act (RCRA), by reference. The DEQ was delegated authority by the Environmental Protection Agency (EPA) to administer the RCRA Permitting Program through the VHWMR.

The above Permit included Corrective Action (CA) permit conditions and requirements as necessary to protect human health and the environment. The CA permit conditions required the CCP facility to investigate and address all releases of hazardous waste or hazardous constituents from the facility, regardless of the time the release occurred. In October 1996, CCP completed a Screening Investigation (SI) to determine whether releases to the environment had occurred from Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). Based on the results from the SI, and in accordance with the requirements of their Permit, CCP performed a more focused investigation, which was called a Verification Investigation (VI). Under the VI, samples were taken of the soils, subsoils, groundwater, sediment, and surface water to determine the nature and extent of contamination on site.

A *VI Report*, dated June 4, 1999, was submitted to the DEQ for review and approval.

The DEQ determined that an additional site investigation and evaluation was needed to further characterize contamination in various media and to establish whether the contaminant levels in all of the media are protective of human health and the environment. The DEQ provided conditional approval of the *VI Report* by correspondence dated July 12, 2001. This conditional approval required CCP to submit a RCRA Facility Investigation (RFI) Work Plan to the DEQ for approval to further investigate and report on the nature and extent of the releases at the Chatham facility. Requirements for the RFI were specified in the DEQ correspondence dated July 26, 2001, September 20, 2001, and September 28, 2001. The RFI is necessary to comply with the requirements of the DEQ and the EPA.

The RFI Work Plan requirements include additional sampling of soils, subsoils, groundwater, sediment, surface water, and stormwater from sample areas identified as requiring further investigation. Data from sampling and testing of the above media will undergo a risk assessment and will be evaluated for the potential impacts to human health and the environment.

In addition, the RFI will include engineering and hydrogeologic evaluations of the existing engineered control measures already in-place at the facility. The existing engineered control measures were installed at this facility under the authority of the State Water Control Board (SWCB) under a previous Special Order and Release Agreement issued to Freeman Chemical Corporation in 1981 and 1982, respectively. (CCP has owned and operated the former Freeman Chemical facility since 1990.) The existing engineered control measures (remediation measures) include the following: two groundwater pump and treat systems, soil removal actions, and the installation of an engineered landfill cap over a large area at the site which showed past soil and groundwater contamination. These measures are summarized in the 1999 *VI Report*.

The RFI evaluations of the existing engineered control measures are to establish whether additional corrective action or remediation measures are needed to minimize migration of contaminants from soils to groundwater, and groundwater to surface water and/or sediments. The potential impact of the contaminant migration to surface waters and nearby wetlands will be more fully assessed and evaluated under current conditions.

A *Phase II RFI Work Plan* was submitted to the DEQ on January 8, 2002. The DEQ's review comments were provided to CCP by correspondence, dated September 30, 2002. A revised *Phase II RFI Work Plan* was submitted to the DEQ by CCP on November 27, 2002. On March 31, 2003, the DEQ provided conditional approval of the *Phase II RFI Work Plan*, contingent upon submittal of correspondence and a *Phase II RFI Work Plan Addendum*, which addressed the DEQ's itemized comments in the conditions of approval.

A *Phase II RFI Work Plan, Revision 2* was submitted to the DEQ on May 21, 2003. The above revised Work Plan and correspondence addressed the agency's itemized comments in the DEQ's

conditional approval, dated March 31, 2003.

The CCP facility's Hazardous Waste Management Permit underwent a Class 2 permit modification to incorporate the CA permit modules and attachments under the Hazardous and Solid Waste Amendments (HSWA) of the RCRA. (Spring-Summer, 2003) The Permit modification was approved by the DEQ effective September 19, 2003. The Permit modification request underwent a public notice mailing and a publication in a major local newspaper, and a public meeting was held in accordance with the requirements of the RCRA Regulations. The Permit's CA modules and attachments outline the plan for further action and provide specific detailed requirements for the evaluation of the nature and extent of releases at the Chatham facility. The Permit CA modules and attachments require a complete human health and ecological risk-assessment associated with the releases at the site.

CCP was sent a confirmation letter and comments regarding their submitted correspondence and the *Phase II Work Plan, Revision 2* by DEQ correspondence, dated June 27, 2003. The RFI Report was scheduled to be submitted to the DEQ within 180 days of the DEQ's confirmation letter. The *Phase II RFI Report* was initially scheduled to be submitted on December 24, 2003.

CCP also submitted a *Flow-Through Process Tank Replacement Work Plan*, dated September 10, 2002. (This above work plan is considered by the DEQ to a component part of the facility's revised *Phase II RFI Work Plan*.) The DEQ considers the replacement of these underground flow-through process tanks as an Interim Measure (IM) under CA due to the co-location of these process tanks with the Solid Waste Management Unit (SWMU) No. 26, Tank Farm Drain System, and the past evidence of a release from this area. The DEQ provided CCP with review comments of this IM Work Plan by correspondence dated December 20, 2002. A *Flow-Through Process Tank Replacement Work Plan – Revision 1*, dated February 21, 2003, was submitted by CCP. The DEQ provided CCP conditional approval of the *Flow-Through Process Tank Replacement Work Plan – Revision 1* by correspondence, dated March 31, 2003. Items of the conditional approval were specified in the above DEQ correspondence.

CCP correspondence was submitted to the DEQ, dated May 19, 2003, to provide clarification and/or a response to each item of the DEQ's conditional approval of the *Flow-Through Process Tank Replacement Work Plan*. The DEQ provided CCP with correspondence, dated June 27, 2003, to further clarify requirements of the DEQ's conditional approval of this IM Work Plan. The tank removal activities associated with this IM were scheduled to begin in June 2003, contingent upon completion of the installation of the new process tanks. The site investigation evaluations, data, and findings during the IM tank removal activities are to be included in the evaluations, risk-assessment, and findings of the RFI Report.

On November 20, 2003, the DEQ sent correspondence to CCP which suggested that the CCP facility request an extension of the previously scheduled RFI Report submittal date beyond December 24, 2003. The DEQ had believed that the extension of the RFI Report submittal date was appropriate due to some outstanding unresolved issues of the RFI Work Plan associated with the completion of the

facility's site-specific risk assessment. The above DEQ correspondence provided CCP with technical review comments regarding an air dispersion model submitted in CCP correspondence, dated August 26, 2003. The above DEQ correspondence also addressed some outstanding information pertaining to the historical operation of the incinerator at CCP which needed to be submitted and reviewed by the DEQ.

The detailed information regarding the air dispersion model and the historical operation of the hazardous waste incinerator at CCP is required to establish the following for the RFI: 1) the air deposition soil sample areas and locations and, 2) the HCOCs for this soil sampling initiative. Information on the air dispersion model and the historical operation of the incinerator are components of the RFI Work Plan were required to be submitted to the DEQ for approval. CCP was requested to submit information on the above two items within 30 days of receiving the DEQ's correspondence, dated November 20, 2003. Information on the above two items was subsequently submitted by CCP in the URS submittal, dated January 5, 2004.

A *Phase II RFI Report*, dated December 2003, was submitted by correspondence from the URS Corporation, dated December 23, 2003, in accordance with the initial RFI Report schedule.

In DEQ correspondence, dated January 15, 2004, CCP was informed that the submitted *Phase II RFI Report* submittal would not be considered the *Final RFI Report* as the submitted Report did not include all of the RFI information in accordance with the facility's Permit and the approved RFI Work Plan. The above submitted *Phase II RFI Report* was missing investigation elements of the RFI, the report findings of the *Flow-Through Process Tanks Replacement Work Plan-Revision 1*, dated February 21, 2003, an RFI interim measure (IM) investigation, and the full human health and ecological risk assessment. The findings from this above IM Report are to be included in the *Final RFI Report*.

On January 5, 2004, URS Corporation submitted correspondence and information for CCP for the outstanding items of the *Phase II RFI Work Plan*, which included: the air dispersion model, the surface soil sampling locations, and the facility's supporting basis and rationale for the soil sampling constituents or hazardous constituents of concern (HCOCs) from the 40 CFR Part 261, Appendix VIII, hazardous constituents list.

On March 31, 2004, the DEQ sent CCP correspondence which provided the technical review comments and a Notice of Deficiency (NOD) for the CCP submittal, dated January 5, 2004, regarding the air dispersion model, the surface soil sampling locations, and the facility's supporting basis and rationale for the soil sampling constituents or HCOCs. CCP was required to resubmit a revised Work Plan with information to address the items delineated in the NOD letter and the enclosed NOD memorandum within 45 days of receipt of the DEQ's correspondence.

On May 21, 2004, URS Corporation submitted the *Surface Soil Sampling and Evaluation Plan* in response to the DEQ's NOD issued March 31, 2004. The *Surface Soil Sampling and Evaluation Plan* is considered a component part of the Phase II RFI Work Plan – Revision 2, dated May, 2003.

The above submitted Plan contains essential information regarding the facility's final elements of the RFI Work Plan which were outstanding for this facility. The RFI Work Plan elements include the following: 1) information regarding the air dispersion model to model air emissions from the facility's current incinerator, 2) the surface soil sampling locations based upon the above model, 3) the background surface soil sampling locations, 4) the HCOCs for this sampling and testing initiative, 5) the analytical test methods and detection limits, and 6) the statistical methods and risk assessment evaluations of products of incomplete combustion (PICs) (dioxins and furans), if found in the surface soils.

On August 5, 2004, the DEQ provided the conditional approval of the *Surface Soil Sampling and Evaluation Plan*, dated May 21, 2004. The *Surface Soil Sampling and Evaluation Report* submittal was scheduled to be submitted in January 2005. This above Report will be considered a component part of the forthcoming *Final RFI Report*.

In addition to the above, on May 5, 2004, URS Corporation submitted the *Flow-Through Process Tank Replacement Report*, dated May 4, 2004. The DEQ considers the work in this project as an interim measure (IM) subject to CA oversight as the underground flow-through process tanks were co-located with solid waste management unit (SWMU) No. 26, the tank farm drain system, and SWMU No. 27, the tank farm sump. SWMU No. 26 drains to SWMU No. 27. Sample data from SWMU No. 27 has shown past evidence of groundwater contamination and a release of HCOCs to the environment.

On May 6, 2004, the DEQ sent correspondence to CCP which advised CCP that a newly identified solid waste management unit (SWMU), a septic tank and drainfield, was identified by the DEQ staff during a file search of the DEQ files. The above file search was related with the ongoing RFI and the review of the historical administrative record regarding the URS/CCP submittal, dated January 5, 2004, regarding the surface soils sampling initiative under the *Phase II RFI Work Plan*. CCP was advised of the nature and extent of the investigation that was needed for this newly identified SWMU. CCP was instructed to provide documentation of the investigation findings regarding this new SWMU in the forthcoming *Final RFI Report*.

On September 29, 2004, the DEQ provided disapproval of the submission of the *Flow-Through Process Tank Replacement Report*, dated May 4, 2004. The DEQ provided technical and administrative review comments in attached memorandums. The DEQ's comments regarding the above submittal also provided CCP with information regarding needed revisions and/or references in the forthcoming *Final RFI Report* submittal.

On December 10, 2004, the URS Corporation submitted the *Flow-Through Process Tanks Replacement Report – Revision 1*, dated December 2004, in response to the DEQ comments of September 29, 2004.

On January 28, 2005, URS submitted correspondence and provided the DEQ with the *Surface Soil Sampling and Evaluation Results Report*, dated May 21, 2004. The above submitted Report was in

response to the DEQ's conditional approval of the submitted Work Plan, by letter dated August 5, 2004. The submitted information in the above Report contained essential information and final elements needed for completion of the *Final RFI Report*.

Effective, January 2005, the above submitted *Phase II RFI Report* had undergone technical review and staff comments have been developed for: 1) risk assessment elements and the risk assessment's consistency with the *Phase II RFI Work Plan – Revision 2*, dated May 2003, and 2) the environmental setting and groundwater results. The DEQ's technical review comments from the risk assessment and groundwater staff had been sent to the CCP facility by correspondence, dated June 14, 2005, to enable CCP to continue to develop the *Final RFI Report*.

On September 15, 2005, the DEQ sent CCP correspondence and attached memorandums with the remaining technical review comments from the DEQ's staff regarding the *Phase II RCRA Facility Investigation (RFI) Report* (Report), dated December 2003. CCP was advised that above Report was not considered the *Final Phase II RFI Report* as it did not include all of the RFI information in accordance with the facility's Permit and the approved RFI Work Plan. A *Final Phase II RFI Report* was initially scheduled to be submitted to the DEQ within 90 days of receiving the DEQ's comments.

Information in the *Final Phase II RFI Report* is to include summary and detailed information of the text, tables, and figures from the following submittals: 1) *Verification Investigation Report*, dated June 4, 1999, 2) *Phase II RFI Report*, dated December 2003, 3) *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, and 4) *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005. The consolidation of information from the above four Reports will provide a comprehensive *Final Phase II RFI Report*, which will help facilitate the review and evaluation of the RFI findings, summaries, and conclusions.

On December 2, 2005, CCP submitted correspondence which requested a 90-day extension for the completion of the *Final Phase II RFI Report* due to comprehensive revisions to the *Phase II RFI Report*, dated December 2003, and the consolidation and summary of multiple reports into a *Final Phase II RFI Report*.

On December 9, 2005, the DEQ approved a 90-day extension for the submittal date of the *Final Phase II RFI Report* to March 21, 2006.

(See text above under Past 24 Months for most recent CA activity for the CCP site.)

(See Summary of Phase II RFI Report Findings for a detailed summary of the *Phase II RFI Report* evaluation and findings.)

Summary of Final Phase II RFI Report Findings

The text, tables, and figures from the submitted components of the *Final Phase II RFI Report*, dated

March 2006, provides documentation of the areal extent and depths of the contamination found in the surface soils, subsoils, groundwater, sediments, and surface waters at the CCP site during the phase II RFI.

Information in the *Final Phase II RFI Report* provides information from the following submittals: 1) *Verification Investigation Report*, dated June 4, 1999, 2) *Phase II RFI Report*, dated December 2003, 3) *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, and 4) *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005.

The surface soils, subsoils, sediments, and groundwater that are impacted by the past releases of HCOCs from the facility is limited in size to an area of approximately 500 ft. x 600 ft. and to a depth of approximately 40 ft. below grade. Contamination is localized to the facility property based upon the investigation findings. The area with the highest concentrations of HCOCs in the subsoils and groundwater is limited to an area of approximately 200 ft. x 300 ft. The groundwater table is typically 20 to 25 ft below the ground surface in the areas showing the highest levels of contamination at the site.

The summary findings and details of the *Final Phase II RFI Report* indicate that the existing contamination at the CCP site primarily includes VOCs and SVOCs in the subsoils and groundwater at the CCP site. The risk assessment evaluations have also indicated that inorganics contribute to the potential risks to human health in addition to the VOCs and SVOCs.

In the areas of highest contamination, the subsoils and groundwater HCOCs primarily include, but are not limited to the following: xylene, ethylbenzene, acetone, toluene, benzene, methyl-ethyl ketone (MEK), methyl-isobutyl ketone (MIBK), styrene, 2-hexanone, chloroform, acetophenone, phenol, dicyclopentadiene (DCPD), and phthalates. Manganese, thallium, and iron have been identified as risk-driver HCOCs in the groundwater at the site and the elevated levels of the above inorganic constituents has been attributed to the reduced conditions caused by the organic HCOCs present.

Information in the *Phase II RFI Report*, dated December 2003, and the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, enabled the DEQ to evaluate the human health risk assessment findings, and to establish whether the current human exposures to HCOCs in the subsoils, groundwater, sediments, and surface waters is under control at the CCP site.

The DEQ's summary of the human health risk assessment findings from the *Phase II RFI Report*, dated December 2003, and the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, is provided in a DEQ staff review comments memorandum entitled Summary of Human Health Risk Assessment Findings – Current Human Health Exposures Under Control Environmental Indicator (HHEI) - Update and Staff Summary, dated April 14, 2005. This above memorandum also provides an update regarding the status of the Current Human Health Exposures under Control Environmental Indicator (HHEI) (RCRIS code (CA725)) for the CCP facility.

Information received in *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005, for the CCP facility enabled the DEQ to evaluate the current human health exposures to HCOCs

in surface soils and to complete the EPA's HHEI for the CCP site so to address requirements regarding the Government Performance Results Act (GPRA).

The *Surface Soil Sampling and Evaluation Results Report* provided the data and the evaluation of the current incremental risk from potential exposure to HCOCs from the historical surface deposition of HCOCs from CCP's hazardous waste incinerator operations. (The CA risk assessment of the RFI needs to include an evaluation of the current potential risks of potential exposure to all media from the historical releases from the CCP facility. This includes historical releases from the CCP facility's incinerator operations.)

The DEQ's summary of the *Surface Soil Sampling and Evaluation Results Report* are provided in a DEQ staff review comments memorandum entitled Surface Soil Sampling and Evaluation Results Report, URS Submittal, January 28, 2005, HHEI Update – Staff Review Comments, dated March 31, 2005.

In the above DEQ memorandum, dated March 31, 2005, the staff summarized the risk assessment findings and determined that:

Based upon the findings and risk assessment in the above Report, the staff believes that current human health exposure to surface soils is under control at the CCP site. This above determination is based upon the fact that the only exposure pathway of concern is the hypothetical future child resident; the future child resident is not a current exposure pathway (at the CCP facility).

Therefore, all current human health exposure pathways to HCOCs in the surface soils are demonstrated to be under control under the current land-use.

The above findings, when combined with the risk assessment findings of the *Phase II RFI Report*, dated December 2003, should enable the staff to determine that the HHEI is under control for the CCP facility under the current land-use.

Based upon the staff's technical reviews, the staff believes that findings in the *Phase II RFI Report*, dated December 2003, and the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, are sufficient to evaluate the current human health exposures at the CCP site and to make a determination whether the current human exposures are under control at the CCP site based upon the nature and extent of the contamination found and the engineering and other controls at the site.

It should be noted that in the above Reports, the total risk is compared to the EPA reference range of 1×10^{-6} and 1×10^{-4} for carcinogens, while the noncarcinogens are compared to the EPA Hazard Index (HI) reference level of 1.0.

A summary of the risk assessment findings regarding the potential exposures to HCOCs in

the subsoils, groundwater, sediments, and surface waters at the CCP site are as follows:

1. Based upon the HCOCs, exposure pathways, and data evaluated, the performance standards of 1×10^{-6} to 1×10^{-4} have been exceeded for the Future Adult/Child under the residential exposure scenario for groundwater and subsoils.
2. Based upon the HCOCs, exposure pathways, and data evaluated, the performance standards of 1×10^{-6} to 1×10^{-4} have been exceeded for the current commercial/industrial worker and the future construction worker exposure scenarios for groundwater and subsoils.
3. Based upon the HCOCs, exposure pathways, and data evaluated, the performance standard HI of 1.0 has been exceeded for the Future Adult/Child under the residential exposure scenario for groundwater and subsoils.

In the *Phase II RFI Report*, dated December 2003, the human health risk is identified Section 5.1.5, Human Health Risk Assessment-Groundwater, Section 5.1.6., Groundwater Summary, and 5.6.3, Risk Assessment, Soil Risks and Hazards, and Section 5.8.1., Shallow Soils and Sediment, and Section 5.8.4, Human Health Risk Assessment. (See attached excerpts of the Report in the above DEQ memorandum, dated April 14, 2005.)

In the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, the human health risk is identified in Section 5.0, Human Health Risk Assessment. (See attached excerpts of the Report in the above DEQ memorandum, dated April 14, 2005.)

Based upon the information in the above Reports and the DEQ staff's knowledge of the site, the existing engineering site controls are effective in preventing contact with the groundwater and subsoils and in mitigating the migration of groundwater to surface waters at the site. The existing engineering controls at the site include, but are not limited to: perimeter fencing, controlled access to the site, concrete and asphalt surface barriers, and two shallow groundwater collection and treatment systems. The potential human health risks under realistic scenarios are limited to potential exposure to outdoor volatile organic compound (VOC) vapors at the site. The Sample Area 5, which has the highest VOCs/HCOCs in subsoils and groundwater at the site, is covered either by asphalt or concrete, which would create a vapor barrier to prevent the HCOCs from reaching the facility personnel and construction workers at the site. (See attached figures in the above DEQ memorandum, dated April 14, 2005.)

Please note that the area of VOC contamination is below a semi-enclosed (open sided) and roofed area of the facility, which has a concrete floor. Workers at the CCP facility which may work indoors may include workers in the CCP facility laboratory, the control room, and in the pressing room, finishing room, office, etc. The indoor office is a stand-alone prefabricated structure approximately 200 ft. from the area of highest subsurface VOC contamination. The other noted manufacturing and process related areas have concrete floors and worker exposures to HCOCs and other process related chemicals should be based upon criteria, standards, and regulations under the Occupational Safety and Health Administration (OSHA), which is regulated under the Department of Labor. A more comprehensive evaluation of potential exposure to indoor air HCOCs is a requirement of the *Final Phase II RFI Report*.

The facility is fully aware of the presence of HCOCs and the impacted media in the Sample Areas 3 and

5, etc., at the CCP site. In the event that subsurface activities are required, the facility will utilize a contractor trained in hazardous materials management to conduct the excavation and management of impacted subsoils. Such excavation work and/or construction would require implementation of a Health and Safety Plan (H&SP) for work at the CCP site. A H&SP would require procedures to protect workers and would require utilization of a flame ionization detector (FID) or photo-ionization detector (PID) and use of personal protective equipment (PPE) (e.g., respirators, protective clothing, etc.) for workers in the impacted area at the CCP site.

All waste generated at the site would be managed, sampled, and tested to establish the proper method of waste management, storage, treatment, and disposal in accordance with the requirements of the Virginia Hazardous Waste Management Regulations (VHWMR), the Resource Conservation and Recovery Act (RCRA), the Virginia Solid Waste Management Regulations (VSWMR), and the DEQ requirements.

In summary, the findings in the *Phase II RFI Report*, dated December 2003, the *Flow-Through Process Tank Replacement Report – Revision 1*, dated December 10, 2004, and the *Surface Soil Sampling and Evaluation Results Report*, dated January 28, 2005, indicate that the current Human Health Exposures Under Control EI determination for the CCP facility should be a “YES” status for the (HHEI) (RCRIS code (CA725)). This “Yes” status indicates that there are no identified unacceptable current human exposures to contamination in excess of appropriate risk-based levels that can be reasonably expected under current land-use and groundwater-use conditions and with the current control measures in place (for all contamination subject to RCRA corrective action (CA) at or from the identified facility (i.e., site-wide)).

DEQ Plan for Further Action

On November 29, 2007, URS submitted a revised *Final Phase II RFI Report*, incorporating all applicable DEQ comments generated during the review process. The DEQ staff is reviewing this submittal prior to approval.

Future corrective action measures at the site will be based upon the *Final Phase II RFI Report*. (For further information, see staff comments under Past 24 Months, page 2 above.)

It should be noted, however, that although the HHEI has been met for the site (based upon the available information), the facility will be required to address the identified HCOCs contamination at the CCP site (which is primarily subsoils and groundwater) and undertake a Corrective Measures Study (CMS) to evaluate the alternatives to remediate the impacted media with the goal of achieving risk-based clean-up levels as necessary to protect human health and the environment in accordance with the requirements of the VHWMR, the RCRA, and applicable State laws and regulations.

On December 19, 2007, the DEQ conditionally approved the Pilot Test Work Plan component of the *IM Proposal Workplan*. Instead of an interim measure, the DEQ considered that a pilot test will move the project forward as the facility awaits approval of its *Final Phase II RFI Report*.

After approval of the *Final Phase II RFI Report*, CCP has ninety (90) days to submit to the DEQ, a *Corrective Measures Study (CMS) Work Plan*, as referenced in CCP's permit. During implementation of the pilot test, CCP will collect data, monitor the effectiveness of the system, and prepare a Pilot Test Report. The Pilot Test Report shall be incorporated into the *CMS Report*.

The *CMS* is to screen and evaluate a number of potential CA remedies, including any specified by the DEQ. Each potential CA remedy is to be evaluated in the *CMS* based upon the following: site conditions established under the RFI, the need to protect human health and the environment, and other criteria specified within the CCP facility's Permit. The evaluations under the *CMS* will be documented in a *CMS Report* submitted to the DEQ for approval and the EPA Region 3.

The *CMS Report* will be the primary basis for a corrective measures remedy selection for the CCP site, if needed. The alternative and proposed corrective measure remedies will undergo public notice and public meetings to receive comments in accordance with Permit requirements. The preferred corrective measures remedy will be established and implemented to protect human health and the environment and will also be based upon other criteria which includes, but is not limited to: long and short term effectiveness and performance of the remedy, reduction of toxicity, mobility, or volume of contamination, technical feasibility, cost, and acceptance by CCP, the State, the EPA, and the Community.

It must be stated that the goal of CA under the VHWMR, the RCRA, and the State Water Control Law is to restore degraded resources (soils and groundwaters, etc.) to levels which are protective of the most beneficial use.

Other potential future CA activities, if needed, may include a *Corrective Measures Implementation Work Plan*, the *Corrective Measures Design*, and *Corrective Measures Construction*.

Site Description

The Cook Composite and Polymers (CCP) facility in Chatham, Pittsylvania County, Virginia occupies approximately 101 acres of property in the Tight Squeeze Industrial Park. The CCP facility is located in Pittsylvania County that is the Piedmont physiographic province of south-central Virginia. The Banister River is located approximately 1,200 ft south of the CCP facility. Unnamed tributaries to the Banister River run just south of the CCP processing site. The environmental setting and updated site specific information is fully described in the *Phase II RFI Report*, dated March 2006.

The CCP facility primarily produces unsaturated polyester resins for use in the manufacture of fiberglass boats, bathroom fixtures, sinks, and related specialty composite products.

Environmental Indicator Status

Under the Government Performance and Results Act (GPRA), EPA has set national goals to address high priority RCRA CA facilities by the year 2005. The CCP facility falls under the GPRA CA initiative and is considered a high priority facility by the EPA.

EPA is evaluating two key environmental indicators (EIs) for each facility: 1) Current Human Exposures under Control, and 2) Migration of Contaminated Groundwater under Control. Virginia's current evaluation of Environmental Indicators for this facility is as follows:

- *Human Exposures Controlled Determination:* The DEQ has made the EI determination of "yes, that current human exposures are under control." The above determination is based upon the DEQ's Current Human Health Environmental Indicator (HHEI) Determination Report, dated April 20, 2005. This above HHEI determination is considered current, effective January 4, 2008.
- *Release to Groundwater Controlled Determination:* The DEQ has made the EI determination of "yes, that migration of contaminated groundwater is under control," based upon the review of CA information for the CCP site contained in the EI determination Report, dated September 25, 2003. The above EI determination indicates that the migration of "contaminated" groundwater is believed to be under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This EI determination is considered current, effective January 4, 2008.

Contaminants

The summary findings and details of the *Final Phase II RFI Report* indicate that the existing contamination at the CCP site primarily includes VOCs and SVOCs in the subsoils and groundwater at the CCP site. The risk assessment evaluations have also indicated that inorganics contribute to the potential risks to human health in addition to the VOCs and SVOCs.

In the areas of highest contamination, the subsoils and groundwater HCOCs primarily include, but are not limited to the following: xylene, ethylbenzene, acetone, toluene, benzene, methyl-ethyl ketone (MEK), methyl-isobutyl ketone (MIBK), styrene, 2-hexanone, chloroform, acetophenone, phenol, dicyclopentadiene (DCPD), and phthalates. Manganese, thallium, and iron have been identified as risk-driver HCOCs in the groundwater at the site and the elevated levels of the above inorganic constituents has been attributed to the reduced conditions caused by the organic HCOCs present.

Community Involvement

As part of the Community Relations Plan (CRP), required under CCP's permit, an information repository has been established at the Chatham Public Library, located at 24 Military Drive, Chatham, Virginia, 24531. The library is within 3.5 miles of the CCP facility. The phone number for the Chatham public library is (434) 432-3271. The information repository provides public access to interim documents and fact sheets, as well as final copies of work plans and technical reports related with CA at the CCP site.

In addition to the above, procedures are established in the CA Permit modules and attachments to provide public notice, public mailings, and public meetings at critical decision points in the CA process. The public notice, mailings, and meetings were held during the Class 2 Permit modification effective September 19, 2003, to inform the public of the CA process, the RFI, and the IM for this facility. CA fact sheets for the RFI and the IM at the facility were provided to the public in mailings and at the public meeting. The executive summary findings in the RFI Report will be mailed to citizens and agencies on the facility's public mailing list upon approval of the RFI Report by the DEQ.

In addition to the above, the CCP facility's Hazardous Waste Management Permit (Permit) For CA was reissued, effective September 27, 2006, under the VHWMR and the RCRA Regulations. The public notice of the draft permit for CA and a public hearing was published in the *Danville Register & Bee* on August 2, 2006, and broadcast on WAKG-FM 103.3 Radio in Danville, Virginia on August 7, 2006. A public hearing was held on September 7, 2006, at 7:00 PM, at the Chatham Middle School, Chatham, Virginia. The public comment period for the draft permit ended on September 22, 2006. The DEQ received no comments expressing the opinion that the DEQ should deny the Permit for reissuance for the CCP facility.

Since corrective measures are necessary at the CCP site, a CMS Report will be submitted to the DEQ for approval and the EPA Region 3. A corrective measures remedy selection will be based upon the alternative remedies presented and evaluated in the CMS Report. The corrective measures remedy will undergo public notice and public meetings in accordance with Permit requirements. Public comments will be considered in the selection of a final remedy for the CCP site. Future CA fact sheets will be developed, as believed needed.

In an effort to get the community more involved, CCP has set up a Community Involvement Program. CCP has started mailing community surveys, has published its first newsletter – CCP Sustainable (September 2007), and held a public meeting at the Chatham High School Auditorium on November 19, 2007 at 7:00 pm. At the public meeting, CCP presented a brief history of its Chatham Plant and addressed some community concerns.

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For more information about EPA's corrective action programs, including Environmental Indicators, please visit: <http://www.epa.gov/epaoswer/hazwaste/ca>

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Fact Sheet Updates

The previous fact sheet was updated July 2007. The next factsheet update is scheduled for July 2008. Previous fact sheets may be obtained through the listed DEQ contact.